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AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

AUG 2 4 1964

Dairy-Herd-Improvement Letter

CURRENT SERIAL RECORDS

ARS-44-144 (Vol. 40, No.4)

May 1964

U.S. ARTIFICIAL INSEMINATION (AI) PARTICIPATION REPORT FOR 1963

A total of 7,673,582 cows were bred artificially in the U.S. in 1963. Dairy to dairy and beef to beef inseminations were in the amount of 6.468.545 and 235,289 cows, respectively. Of the 7,438,293 dairy cows' total, 13.0 percent, or 969,748, represented inseminations of beef bulls.

The AI participation report by State shows that nationally 41.2 percent of all cows and heifers bred for dairy purposes were bred artificially, an estimated 10.7 percent of which were registered. The top 10 States in number and percentage of dairy cows bred artificially by dairy bulls are as follows:

Numbe	er of dairy c	ows	bred	artificially		Percent of all	
1.	Wisconsin			1,195,354	l.	Alaska	68.6
2.	New York			610,432	2.	Hawaii	66.3
3.	Minnesota			580,563	3.	Connecticut	62.9
4.	Pennsylvania			529,627	4.	Pennsylvania	61.7
5.	California			356,365	5.	Washington	59.7
6.	Michigan			315,842	6.	Wisconsin	58.7
7.	Ohio			284,142	7.	Florida	57.1
8.	Iowa			230,729	8.	Maine	56.2
9.	Illinois			208,213	9.	New Hampshire	56.1
10.	Indiana			143,845	10.	New Jersey	54.9

A total of 2,140 dairy and 398 beef bulls were reported in service as of January 1, 1964. Also reported were inseminations to 620 hogs and 309 goats.

The status of AI in cattle since 1939 shows that an estimated 621,141 dairy herds received AI service in 1963. This is lower than the 862,150 herds reported for 1962 since earlier estimates represented membership enrollment rather than herds serviced. Approximately 50 percent of all dairy herds in the U.S. were serviced entirely or in part by AI. An average of 12 dairy cows per herd serviced were bred artificially.

Because of incomplete reporting, some of the tabular material presented in this report are estimations based on averages from complete reports. report does not include several strictly beef operations. As a result, beef to beef inseminations in the U.S. were somewhat greater than 235,289.

The accompanying map illustrates AI density in the U.S.

STATUS OF ARTIFICIAL-BREEDING PROGRAM IN THE UNITED STATES 1939-64

	Cows bred per sire	No.	228 246 299	274 318 332	495 597 815	982 1,078 1,245	1,605 1,848 1,865	1,937 2,210 2,257	2,284 2,483 2,816	2,808 3,010 3,155	2,999
Total	cattle	No.	7,359 33,977 70,751	112,788 182,524 218,070	360,732 537,376 1,184,168	1,713,581 2,091,175 2,619,555	3,509,573 4,295,243 4,845,222	5,155,240 5,413,874 5,762,656	6,055,982 6,645,568 6,932,294	7,144,679 7,482,740 7,748,687	7,673,582
	Beef cows bred to beef bulls	No.	111	111	111					111	235,289
hred	1 1	No.	1-1-1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	$\frac{2}{435,592}$	969,748
Dairy cows		No.	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	7,047,148 6,837,681	6,468,545
	Herds 1/	No.	2,971 5,997	12,118 23,448 28,627	43,998 73,293 140,571	224,493 316,177 409,300	548,300 671,100 755,000	805,000 845,900 900,400	946,000 975,372 930,059	910,000 863,781 862,150	621,141
	Average per stud	No.	4.7 6.8 8.8	9.0 9.7 11.7	10.9 11.5 17.3	19.2 21.6 21.7	23.3 24.7 27.1	28.6 31.0 32.3	35.3 37.7 38.4	41.0 44.4 43.9	50.2
service	Tota1	No.	33 138 237	412 574 657	729 900 1,453	1,745 1,940 2,104	2,187 2,324 2,598	2,661 2,450 2,553	2,651 2,676 2,460	2,544 2,486 2,456	2,559
Sires in	Beef	No.	1 1 1	1 1 1	111	1 1 1	1 1 1	1 1 1	1 1 1	420	401 398
S	Dairy	No.		1 1 1	1 1 1	1 1 1	1 1 1	1 1 1		2,036	2,158
	Studs	No.	25 35	46 59 56	67 78 84	91 90 97	96 96	93 79 79	75 71 64	62 56 56	51 3/50
	Year		1939 1940 1941	1942 1943 1944	1945 1946 1947	1948 1949 1950	1951 1952 1953	1954 1955 1956	1957 1958 1959	1960 1961 1962	1963 1964

1/ Prior to 1963, number of herds largely reflected membership rather than those actually serviced.
2/ Probably include some beef to beef inseminations.
3/ Not shown are inseminations to 620 hogs and 309 goats.

STATUS OF ARTIFICIAL-BREEDING PROGRAM (January 1, 1964)

Alabama 3/ Alaska Arizona 3/ California Connecticut Delaware 3/	Register Number 7,955 1 97 0 1,260 0 3,299 5 29,969 1 3,825 1 9,423 0 2,383	42,832 1,290 15,112 22,527 356,365 40,525	Dairy cows Number 2,817 769 455 5,737 17,463	Number 1,198 200 54 1,647	Total Thousands 234 3 54	Dairy cows bred Percent 19.5 68.6
Alabama 3/ Alaska Arizona 3/ Arkansas 3/ California Colorado Connecticut Delaware 3/	ber Number 0 7,955 1 97 0 1,260 0 3,299 5 29,969 1 3,825 1 9,423 0 2,383	Number 42,832 1,290 15,112 22,527 356,365 40,525	Number 2,817 769 455 5,737	Number 1,198 200 54	Thousands 234 3	Percent 19.5 68.6
Alabama 3/ Alaska Arizona 3/ Arkansas 3/ California Colorado Connecticut Delaware 3/	0 7,955 1 97 0 1,260 0 3,299 5 29,969 1 3,825 1 9,423 0 2,383	42,832 1,290 15,112 22,527 356,365 40,525	2,817 769 455 5,737	1,198 200 54	234	19.5 68.6
Alaska	1 97 0 1,260 0 3,299 5 29,969 1 3,825 1 9,423 0 2,383	1,290 15,112 22,527 356,365 40,525	769 455 5,737	200 54	3	68.6
Alaska	1 97 0 1,260 0 3,299 5 29,969 1 3,825 1 9,423 0 2,383	1,290 15,112 22,527 356,365 40,525	769 455 5,737	54		
Arkansas 3/ California Colorado Connecticut Delaware 3/	0 3,299 5 29,969 1 3,825 1 9,423 0 2,383	22,527 356,365 40,525	5,737		54	20.0
California Colorado Connecticut Delaware 3/	29,969 1 3,825 1 9,423 0 2,383	356,365 40,525	5,737 17,463	1.647		28.8
Colorado Connecticut Delaware 3/	29,969 1 3,825 1 9,423 0 2,383	356,365 40,525	17,463		200	14.1
Connecticut Delaware 3/	1 9,423 0 2,383			2,892	867	43.1
Delaware 3/	0 2,383		4,071	3,376	114	39.1
Delaware 3/			8,082	1,432	84	62.9
		8,822	1,326	129	26	39.0
	0 8,519		10,706	1,289	184	57.1
~ -	0 5,538		2,706	605	212	22.3
	0 480		221	58	15	66.3
Idaho 3/	0 5,778 3 36,701	89,600	7,047	3,035	215	45.0 44.8
Illinois			38,389 13,381	17,812 2,601	550 436	36.1
Indiana Iowa	1 17,803 1 15,805	143,845 230,729	48,468	27,950	844	33.1
Kansas	1 9,374		9,036	7,317	337	25.9
Kentucky	1 13,518	101,491	26,685	6,404	528	24.3
	1 9,650		5,124	9,412	255	24.4
	1 10,252		5,258	1,845	101	56.2
	1 14,180		14,885	3,260	226	49.2
Massachusetts 3/	0 7,869	42,999	7,895	1,399	93	54.7
Michigan	1 43,817	315,842	40,063	8,682	687	51.8
Minnesota	2 36,803	580,563	58,795	4,136	1,407	45.4
	1 3,006		10,218	2,593	322	17.4
	0 17,364		37,820	5,766	633	24.5
Montana 37	0 622		8,668	4,217	74	27.1
Nebraska 3/	0 6,179 0 355	51,927	16,397 389	10,064	299 17	22.9 27.2
Nevada 3/ New Hampshire	1 6,728	4,239 28,831	3,152	579 755	57	56.1
	1 8,787		7,774	665	125	54.9
New Mexico 3/	0 1,241	17,123	1,002	560	43	42.2
	1 110,036		90,558	2,222	1,338	52.4
	1 12,281	80,766	4,995	8 9 8	272	31.5
North Dakota 3/	0 1,492		7,365	1,199	276	13.9
Ohio	2 51,212		59,067	19,431	677	50.7
	0 3,084		2,911	793	226	8.9
	1 5,486		14,914	6,285	156	48.8
Pennsylvania	6 104,973		55,610	8,133	949	61.7
	1 1,843 0 785	35,909 4,250	- 841	- 134	<u>-</u> 14	36.4
South Carolina 3/-	0 4,845	26,835	3,279	621	103	29.2
South Dakota 3/	0 2,640		14,675	2,691	251	17.0
Tennessee	3 7,463	82,957	18,627	10,581	505	20.1
	1 4,441	72,176	11,793	10,193	556	15.1
Utah	1 2,548	44,680	4,815	1,383	102	48.5
	0 18,820	113,299	14,362	2,024	276	46.3
	1 16,235		11,801	1,981	352	30.0
Washington	2 12,027	117,054	32,311	12,390	250	59.7
	0 4,800		968	4,337	122	16.6
Wisconsin	6 94,902		199,955	15,481	2,378	58.7
Wyoming <u>3</u> /	0 527	6,065	6,102	2,580	28	43.5
United States 5	0 799,020	6,468,545	969,748	235,289	18,073	41.2

^{1/} Estimates were made when reports were incomplete.
2/ Statistical Reporting Service estimate of number of cows and heifers 2 years old and over kept for milk.
3/ All semen purchased from studs in other States.

ARTIFICIAL-BREEDING ORGANIZATION BULL STUDS, JANUARY 1, 1964

Beef Total Serviced Dairy Dairy Beef Dairy Dai		Troomin	241,000		Ž	mhor an	d brood	of P	bulle need	head		-	Horde		Cows bred 1963	1963	
musta valley Breeders	State, Name, and Location of Studs	Swine	Goats		Brow	Guern- sey	Hol-	er-	Red S			1	erviced	Dairy total	Dairy B	eef o beef	Total
Probability Frame Inscending Frame Frame Inscending Frame	ALASKA Matanuska Valley Breeders Assn., Palmer	1	1	1	1	1	m	1	1	1		4	70	½/ ₉₀₃	1/755	198	1,856
Fig. Pairy Secretary Secre	CALIFORNIA Adobr Farms Inseminating Service, P. O. Box 88, Camarillo	1	1	1	1	10	Ħ	1	1	1	1	21	45	8,631	١	1	8,631
Particles Breeding Sorter Control Received Sorter Cont	Calif. Dairy Breeders, Inc., P.O.Box 188, Davis-	ı	2	1	1	7	15	6	1		5	36	1,619	45,017	3,228	485	48,730
## Second Bord. ## Sec	Excelsior Breeding Ser- vice,7401 Adams,Corona Jessup Breeders, 11630	1	1	ı	1	1	15	1	1			16	113	23,533	•	ı	23,533
And Peckers and Pe	East Artesia Blvd., Artesia	1	69	1	7	10	29	6	1	2	1	54	1,143	$\frac{1}{2}$ 94,723	$\frac{1}{2}$,511	661	97,895
CUTCUT CONTROL ABS, Collins	1464 Middle Two Rock Road, Petaluma	1	1	1	1	9	11	5	ı		1	22	400	28,290	945	237	29,472
England Selective England Sele	COLORADO Colorado State Univ. ABS, 809 City Park Ave., Rt. Collins	1	2	ı	1	1	2	1	1	1	50	00	992	11,324	695	3,071	15,090
Works Breeding Service, 4 3 18 67 13 - 2 50 157 31,100 782,965 178,913 21,000 9 15. Cary	CONNECTICUT New England Selective Breeding Assn., Newton Road, Woodbridge	1	26	2	4	7	19	10	1	1	1	42	8,803	96,001	15,819	3,266	115,086
Decentifi, Breeding No. Naman & Sons, L. Hampshire 18 5 - 11 13 37 1 - 62 8,008 81,559 14,185 6,277 1 Later III. Breeding No. Naman & Sons, L. Hampshire 21 6 18 3 - 3 - 30 10,524 46,203 14,593 10,396 No. Naman & Sons, L. Box 21,Culver 2/	ILLINOIS Curtiss Breeding Service,	1	1	4	m	18	67	13	1	2	50	157	31,100	782,965	178,913	21,000	982,878
A. Newman & Sons, 1.	Coop., Rt. 1, Hampshire-	18	2	1	11	13	37	1	ı	1	1	62	8,008	81,559	14,185	6,277	102,021
ANA Newman & Sons,	Assn., Breese	1	21	1	1	9	18	n	ı	3	ı	30	10,524	46,203	14,593	10,396	71,192
swatha	. Newman & Sons, Box 21, Culver $\frac{2}{}$	ı	1	1	1	1	9	1	1			1/6	57	687	1		687
Artificial Breed- Service Unit, Kansas - 5 4 5 4 4 - 4 19 64 7,250 36,512 4,253 6,460 CY Trificial Breeding ., 1930 Herr Lane, - 2 - 5 8 16 10 12 51 13,450 1/1,552 1/1,961 5,768 ANA Trificial Breeding ., 100, Box B. D., - 6 9 6 12 33 5,390 52,016 4,550 9,277	IOWA Eastern Iowa Breeders, Hiawatha	,	1	2	6	80	26	2	1	٣	1	20	30,378	105,301	21,400	15,922	142,623
1930 Herr Lane, 2 - 5 8 16 10 12 51 13,450 1/71,552 1/21,961 5,768 111e	KANSAS Kansas Artificial Breeding Service Unit, Kansas State Univ., Manhattan	1	Ŋ	4	2	4	24	4		4	19	79	7,250	36,512	4,253	6,460	47,225
ficial Breeding Inc., Box B. D., ton Rouge 1 33 5,390 52,016 4,550 9,277	KENTUCKY Ky. Artificial Breeding Assn., 1930 Herr Lane, Louisville	1	2	t	5	00	16	10	1		12	51	13,450	1/71,552	21,961	5,768	99,281
	LOUISIANA La. Artificial Breeding Coop., Inc., Box B. D., LSU, Baton Rouge	ı	1	1	1	9	6	9	1	,	12	33	5,390	52,016	4,550	9,277	65,843

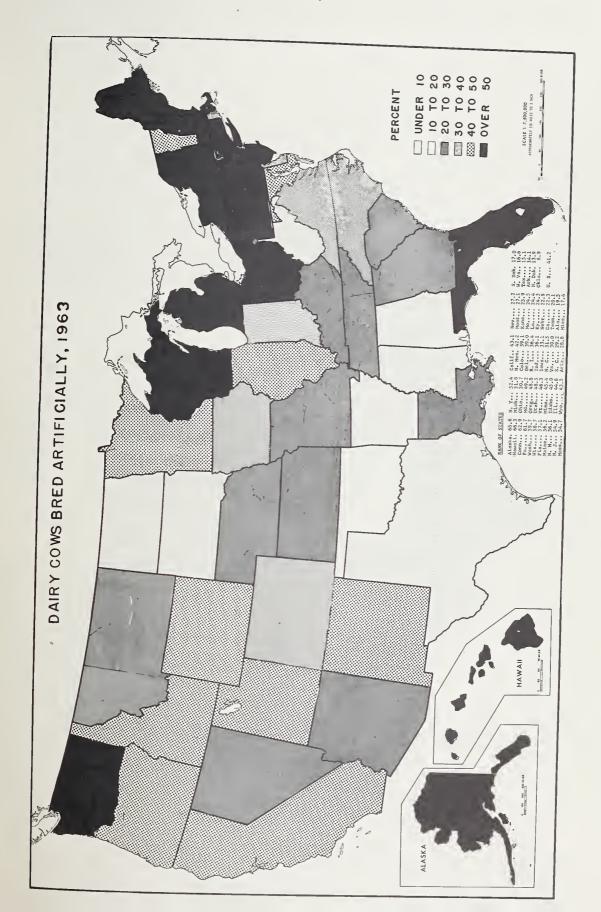
1/ Data may be all or partially estimated when incomplete report was given. $\frac{1}{2}$ / Based on last report available, (1-1-63).

	T mooma	Tacominactions		N.	my John	hrand h	9		000		+	Horde		0.00	1062	
State, Name, and Location of Studs	Swine		Ayr- shire	Brown	Brown Guern- Hol- Jer- Swiss sey stein sey	Hol- J	Jer-R	Red Short-		Beef Total	-	serviced	Dairy	Dairy Beef to beef to beef	eef to beef	Total
MAINE Maine Breeding Coop., Inc., RFD 1, Augusta	1	•	1	1	11	15	12	1	'n	4	48	4,500	45,566	3,942	1,689	51,197
MARYLAND Maryland-West Virginia Bull Stud, Inc., P. 0. Box 555, Frederick		30	'n	50	œ	19	9	ı		7	50	13,400	94,727	12,025	7,166	113,918
MICHIGAN Mich. ABC, Inc., P. O. Box 511, East Lansing	1	19	٣	'n	12	37	6	m	4	15	88	19,959	1/228,814	1/28,670	7,530	265,014
MINNESOTA Midwest Genes, Inc., Box Ill., Anoka Minn. Valley Breeders Assn., New Prague	1 1	t i	ı m	∞ m	19	90 07	9 6	1 1	0 4	- 26	132	63,668	1/376,449 253,455	1/56,962 52,985	20,979	454,390
MISSISSIPPI Mississippi ABC, State College	1	4		1	4	'n	6	1	1	2	1/20	2,572	1,22,499	$\frac{1}{6}$,613	1,753	30,865
NEW HAMPSHIRE New Hampshire-Vermont Breeding Assn., Box 350, Concord	1	'	2	1	œ	14	10			7	38	5,156	<u>1</u> ∕53,095	½/5,488	1,441	60,024
NEW JERSEY New Jersey Coop. Breeders Assn., Annandale 08801	1	16	•	2	0	17	m			2	33	2,125	41,530	6,336	500	48,366
NEW YORK New York ABC, Inc., Judd Falls Rd., Ithaca		ı	13	15	23	96	29	1	1	15	189	28,947	477,759	74,100		551,859
NORTH CAROLINA N. C. Institutional Breeding Assn., Dept. Animal Science, N. C. State College, Raleigh 2/	t	1	1	1	1	13	1	ı	1	1	13	10	$\frac{1}{4}$, 132	<u>1</u> /182	48	1,362
OHIO Central Ohio Breeding Assn., 1224 Alton-Darby Rd., Columbus 43204 MOBA, Inc., Box 1015,	1	39	7	4 "	17	35	10	1	, -	1 0	73	36,802	1/193,241	1/40,102	24,703	258,046
OREGON Oregon Breeders Assn., P.O. Box 48, Corvallis	1	6	1	,	12	3 11	: :			, 10 10	39	7,700	27,291	12,182	5,653	45,126
PENNSYLVANIA First Pa. ABC, Lewisburg- Lehigh Valley Coop.	'	1	ı	1	7	19			ı	10	36	5,900	55,540		15	58,463
Farmers, Rt.1,Allentown-	-	'	4	1	9	19	2			2	34	1,975	½,76,485	1/3,818	1,003	31,306
1/ 100+0 -011 00 1000+	44011100	to to the to	the state of	incom	1000	and the contract										

1/ Data may be all or partially estimated when incomplete report was given. 2/ Based on last report available, (1-1-63).

							-	,			-				1 1023	
State, Name, and Location of Studs	Swine Goats		Ayr- shire	Brown Guern- Hol- Jer- Red Short- Swiss sey stein sey Dane horn	uern-	Hol- J	er-R	ed Stane		Beef To	Total	serviced number	Dairy total	Dairy Beef to beef to beef	Beef to beef	Total
PENNSYLVANIA (Con't.)																
NEPA ABC, P. O. Box 26, Tunkhannock	1	1	2	1	7	22	œ		1	9	48	7,000	92,254	15,563	ı	107,817
Southeastern Pa. ABC, Box 254, Lancaster	1	33	4	ı	6	21	4	i	ı	12	20	9,016	124,236	15,852	1,404	141,492
Clarion	1	ı	4	7	18	28	10	1		9	73	14,262	128,250	2,100	3,931	134,281
Lehighton	1	•	1		1	9	1	1	1	1	1/6	167	2,000	ı	ı	2,000
PUERTO RICO PUERTO RICO Artificial Breeding Assn., P. 0. Box 958, Dorado 2/	1	ı	I	4	1	11		1	1	2	17	931	17,776	í	1	17,776
TENNESSEE East Tennessee ABA, Rt. 10., Knoxvilla		1	en	2	6	12	6			œ	77	4,170	26,939	7,029	3,423	37,391
Breeding Association, Brentwood		1	1	2	7	9	6	,	t	5 1	1/29	2,919	24,880	6,832	3,319	35,031
West Tennessee Artificial Breeding Assn., Yorkville	ı	•	ı	ı	1	7	7	ı	1	9	18	2,019	7,078	999	3,420	11,163
TEXAS Texas A & M Dairy Breeding Center, College Station	ı	1	1	1	1	П		1	1	10		2	777		1	777
UTAH Cache Valley Breeding Assn., 1950 N. Main, Logan 84321	1	1	<u>ო</u>	m	m	20	m		4	19	55	8,125	61,674	8,973	7,312	77,959
VIRGINIA Va. ABA, Inc., P. O. Box 391, Rocky Mount	١	10	4	1	7	15	2	ı		7	38	6,205	55,601	8,063	1,451	65,115
WASHINGTON W. De Jong's Supreme Bull Service, Rt. 1., Monroe 2/	,	ı	ı	1	1	က	1	1	1	1	4	09	$^{1/1}$,455	1/436	114	2,005
Breeders, Inc., P. 0.Box 197, Burlington		1	1	2	12	20	12	1	٠ ٣	15	65	17,096	73,421	25,892	11,072	110,385
WISCONSIN American Breeders Service, Madison	1	1	m	4	12	54	13	1	4	54 1/	1/144	125,056	1,398,853	½/80,640	21,180 1	1,500,673
Associated Breeding Service, Lena	1	1	4	ı	4	6	1		1		17	2,000	18,387	3,480	243	22,110
	'	1	1	9	17	31	9	ı		œ	89	22,265	343,465	60,817	3,994	408,276
Coop., Waupun	1	'	•	5	5	23	ı	1	1	9	39	000,9	72,009	17,230	100	89,339
Piper Bros. Farms, Inc., Watertown	1	'	•	1	4	26	ı	ı	1	1	31	4,127	91,672	19,618	2,300	113,590
Tri-State Breeders Coop., Westby	602	'	1	10	20	65	6		2	19	128	24,214	366,186	71,579	5,502	443,267
UNITED STATES	620	309	81	134	399	1,176	290	4	56 3	398 2,	2,538	621,141	6,468,545	969,748	235,289 7	7,673,582
1/ Data may be all or partially		estimated	when	incomp	lete re	incomplete report was	as given	en.								

 $\frac{1}{2}$ Data may be all or partially estimated when incomplete report was given. $\frac{2}{2}$ Based on last report available, (1-1-63).



EXTENSION SERVICE OFFICIALS WORKING WITH DAIRY BREEDING ORGANIZATIONS IN THE STATES

```
Ala----R. Sam Jones, Jr., Extension Service, Auburn University, Auburn.
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Ariz ---- W. R. Van Sant, Extension Service, University of Arizona, Tucson.
Ark-----James B. Ragland, Extension Service, University of Arkansas, Little Rock.
Calif----R. D. Appleman, Extension Service, University of California, Davis. Colo-----D. C. Jordan, Extension Service, Colorado State University, Ft. Collins.
Conn----Robert H. Benson, Extension Service, University of Connecticut, Storrs. Del-----W. R. Hesseltine, Extension Service, University of Delaware, Newark. Fla-----C. W. Reaves, Extension Service, University of Florida, Gainesville.
Ga-----J. Nelson Maddux, Extension Service, University of Georgia, Athens. Hawaii---H. M. Vollrath, Department of Animal Science, University of Hawaii,
                                                                                                                           Honolulu.
Idaho --- George W. Cleveland, Extension Division, University of Idaho, Boise.
Ill-----J. G. Cash, Extension Service, University of Illinois, Urbana.
Ind----N. J. Moeller, Dairy Extension Office, Purdue University, Lafayette.
Iowa----D. E. Voelker, Extension Service, Morrill Hall, Iowa State University, Ames.
Kans----Ralph Bonewitz, Extension Service, Kansas State University, Manhattan.
Ky-----E. C. Troutman, Extension Service, College of Agriculture, Lexington 29.
La-----H. W. Anderson, Agri. Extension Service, Louisiana State University,
                                                                                                                           Baton Rouge 3.
Maine----Ralph Corbett, Extension Service, College of Agriculture, Orono.
Md-----J. R. Schabinger, Extension Service, University of Maryland, College Park. Mass----S. N. Gaunt, Extension Service, University of Massachusetts, Amherst.
Mich----L. A. Johnson, Extension Division, Michigan State University, East Lansing.
Minn----R. W. Wayne, Extension Service, University of Minnesota, St. Paul 1.
Miss----G. B. Crain, Extension Service, Mississippi State University, State College.
Mo----R. G. Hinders, Extension Service, University of Missouri, Columbia.
Mont----E. J. Peace, Extension Service, Montana State College, Bozeman.

Nebr----C. W. Nibler, Extension Service, University of Nebraska, Lincoln 1.

Nev----J. D. Schuh, Extension Service, University of Nevada, Reno.

N. H----Hilton Boynton, Extension Service, University of New Hampshire, Durham.

N. J---E. T. Oleskie, Extension Service, College of Agriculture, New Brunswick.
N. Mex---B. Ells, Extension Service, New Mexico College of Agriculture, University Park.
N. Y----B. Ells, Extension Service, New Mexico College of Agriculture, University Park.
N. Y----Raymond Albrectsen, Extension Service, Cornell University, Ithaca.
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